

REMARKS

In the Office Action mailed November 24, 2003, claims 7, 10, 11, 17, 20, 21, 27 were rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. Claims 1-9, 11-19 and 22 were rejected under 35 U.S.C. § 103(a) in view of US Patent 6,604,070 (hereinafter Gao) and further in view of US Patent 6,603,501 (hereinafter Parry). Claims 21, 23-29, 31 and 32 were rejected under 35 U.S.C. 103(a) in view of Gao, Parry, and US Patent 6,175,856 (hereinafter Riddle).

Claims 10, 11, 20 and 21 have been canceled by the above amendment.

Applicants respectfully traverse the rejections. Reconsideration of the instant application by the Examiner in view of the remarks below is respectfully requested.

Aspects of The Claimed Invention

In one aspect, the present invention provides a VoIP platform that supports a plurality of codecs. According to one embodiment, sound data originating from a user (e.g., a participant in a VoIP forum) is buffered and broken into discrete blocks. Each of the discrete blocks is then processed with one or more codecs to produce encoded data. Each codec independently converts the discrete blocks to produce encoded data. As a result, when more than one codecs are used on the same discrete block, *redundant* digital representations of the same discrete block of sound signal originating from the user will be produced. Each digital representation, or digital form, corresponds to the output of a particular codec used. For example, the same piece of sound signal may be converted by two different codecs (e.g., a CELP codec and a H.323 G.711 codec) to produce two distinct digital representations. Note that in this example the two digital representations, although distinct, are *redundant* to each other because they represent the same piece of sound signal. When *redundant* representations are generated, the sound signal is considered *redundantly* represented in a plurality of forms.

According to one embodiment of the invention, *redundant* digital representations produced by different codecs may be transmitted in a data structure (e.g., a UDP packet) to a

server. The server, upon receiving the data structure, analyzes to determine whether digitized speech is *redundantly* represented in multiple digital forms in the data structure. If multiple *redundant* representations are present, the server may select one or more of the *redundant* representations and forward the selected representation(s) to a receiving party (e.g., another participant of a VoIP forum) for rendering.

In another aspect of the invention, different codecs may have different characteristics. For example, in some embodiments of the invention, a codec may yield 20 milliseconds digital frames and another codec may yield 36 millisecond digital frames. In such cases, four digital frames generated by the high bandwidth (20 millisecond) codec together with a 10 millisecond residue, and two digital frames generated by the low bandwidth (36 millisecond) codec together with a 18 millisecond residue, may be packaged into a single 90 millisecond UDP packet. A flag in the UDP header may be encoded to reflect that the UDP packet has two *redundant* forms of digital data. It should be noted that, when codecs having differing frame lengths are used, the durational amount of data generated by each codec and packaged into single UDP packet may vary. In the above example, the durational amount of data generated by the high bandwidth codec and packaged into a UDP packet is 80 milliseconds, while the durational amount of data generated by the low bandwidth codec and packaged into the UDP packet is only 72 milliseconds. In this example, the data generated by the low bandwidth codec may be redundant to the data generated by the high bandwidth codec, but some data generated by the high bandwidth codec may not be redundantly represented.

Gao et al.

The Office Action indicated that Gao discloses an encoder of a VoIP wireline device receiving digitized speech. The digitized speech represents voice speech, unvoiced speech, noise and music. The Office Action further indicated that the voice speech, unvoiced speech, noise and music are digitized speech representing in a plural forms in data structures. Additionally, the Office Action indicated that the encoder of Gao uses a module "to analyze the digitized speech and selects *one* of the codecs to encode the digitized speech." (Emphasis added).

Gao does not teach an encoder that encodes voice signal using multiple codecs to produce *redundant* representations of the voice signal. Rather, as the Office Action pointed out, Gao teaches selecting *one* of the codecs to encode digitized speech. Furthermore, in col. 10, lines 12-15, Gao teaches that "[t]he initial frame-processing module 44 performs common processing to determine a rate selection that activates *one* of the rate encoders 36, 38, 40 and 42." (Emphasis added).

There is no motivation to modify Gao such that it uses multiple codecs to produce redundant representations of sound data. The stated goal of the Gao invention is to maintain a desired average bit rate while maximizing speech quality. Transmitting redundant representations of the same speech diametrically opposes Gao's stated goal because speech quality is only as good as the highest quality codec used. It is submitted that transmitting *redundant* representations generated from different codecs necessarily increases bandwidth and bit rate requirements without improving speech quality. There is nothing in Gao that suggests otherwise. Therefore, it would not be desirable to those with ordinary skill in the art to modify Gao, in view of its teachings and stated goal, such that it uses multiple codecs to encode the same piece of sound signal to produce *redundant* representations. ✓

Furthermore, Gao fails to teach analyzing whether any received data contains data that is redundantly represented in a plurality of forms. There is no motivation to do so because Gao's system does not produce *redundant* representations of sound data, and hence, there is no need at the receiving end to analyze whether any received data contains *redundantly* represented data.

Gao teaches the use of different codecs to encode different parts of a sound signal. For example, a high quality codec may be used to encode frames containing voiced speech, and a low quality codec may be used to encode frames containing unvoiced speech. Note that this is distinct from generating redundant representations of sound signals. And, the receiver of Gao does not need to analyze whether the received data contains any *redundantly* represented voice signal. ✓

Parry et al.

The Office Action indicated that Parry discloses a video teleconference transferring signals from a sender to a receiver. The sender sends encoded audio signals based on the status of the receiver. The Office Action further concluded that "it would have been obvious to one skilled in the art to apply the transmitting encoded audio signals to a receiver based upon the status of the receiver into Gao et al. in order to enhance the bandwidth for transmitting encoded speech to the other receiver."

Parry does not disclose transmitting *redundant* representations of the same speech information. When referring to the steps of processing audio signals, Parry simply teaches "the audio packet is then encoded 410, sent, and decoded 414." (Parry, col. 7, lines 11-12, and FIG. 4).

Riddle

The Office Action indicated that Riddle discloses a teleconference between a sender and a receiver. The Office Action further indicated that:

- The sender and receiver each comprises computer program instructions stored in memories;
- The computer program instructions include a list of compressors selected to encode digitized voice based upon bandwidth of the compressor; and
- It would have been obvious to one skilled in the art to perform the steps of Gao et al. by programming and storing the steps as the executable instructions into the memory of Riddle in order to execute the program steps;
- The motivation is for performing teleconference between participants via VoIP networks.

Riddle does not teach generating and transmitting *redundant* representations of voice data. In contrast, Riddle teaches a process that includes the step of "selecting in response to the information *a* particular compression process for use in compressing data for transmission to the remote processor." (Emphasis added.) Riddle further teaches "[t]he selector receives

information from a receiving processor and selects *one* of the two data compressors based on the information receive..." (Riddle, col. 1, lines 63-64). (Emphasis added.)

Generating *redundant* representations of the same sound data using multiple different data compressors is contradictory to the aforementioned explicit teachings of Riddle.

Claims 1-8

Claim 1 includes the limitation of "analyzing said data structure to determine whether said digitized speech is redundantly represented in plurality of forms in said data structure." Applicants respectfully submit at least this limitation is not taught or suggested by Gao.

As discussed in the sections above, Gao does not teach analyzing whether any received data contains data that is *redundantly* represented in a plurality of forms. Furthermore, since Gao does not teach generating *redundant* representations of sound data, there is no motivation to analyze whether any received data contains data that is *redundantly* represented in a plurality of forms. Thus, Gao fails to teach or suggest this claim limitation.

As discussed in the sections above, Parry and Riddle also fail to teach analyzing whether any received data contains data that is *redundantly* represented in a plurality of forms. Furthermore, Parry and Riddle fail to teach generating and transmitting data *redundantly* represented in a plurality of forms. Hence, there is no need for Parry's and Riddle's inventions to analyze any received data to determine whether it contains digitized speech that is *redundantly* represented in a plurality of forms. Thus, Parry and Riddle also fail to teach this claim limitation.

Accordingly, Gao, Parry and Riddle fail to teach or suggest, individually or in combination, a step of analyzing a data structure to determine whether digitized speech is redundantly represented in a plurality of forms in the data structure.

Establishing a *prima facie* case of obviousness requires that the prior art give reason or motivation to make the claimed invention. In re Dillon, 919 F. 2d 688, 692-93, 16 USPQ2d 1897, 1901 (Fed. Cir. 1990) (en banc), cert denied, 500 U.S. 904 (1991). (Emphasis supplied.) Second, there must be a reasonable expectation of success. Third, the references when combined

must teach or suggest all the claim limitations. MPEP 2141. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (1991).

Finally, it is *impermissible* to first ascertain factually what the inventor did and then view the prior art in such a manner as to select from the random facts of that art only those which may be modified and then utilized to reconstruct the invention from such prior art. Panduit Corp. v. Dennison Manufacturing Co., 774 F. 2d 1082, 1092, 227 USPQ 337, 343 (Fed. Cir. 1985). (Emphasis supplied.)

Applying these principles to the invention as embodied in the present claims and to the Gao, Parry and Riddle references, the Applicants respectfully submit that a proper reading of the references fails to disclose or suggest the invention embodied in Claims 1-8.

With respect to claim 7, which was rejected under 35 U.S.C. § 112, second paragraph, the Examiner's attention is directed to the explanation above concerning codecs and their characteristics. For instance, when codecs having differing frame lengths are used, the durational amount of data generated by each codec and packaged into a data packet (e.g., a UDP packet) may vary, even when the same voice signal is being processed. It is submitted that claim 7 particularly points out and distinctly claims what the applicants regard as the invention.

Claims 13-18

Claim 13 includes the limitation of "an analyzer module for analyzing said data structure to determine whether said digitized speech is redundantly represented in plurality of forms." Applicants respectfully submit at least this limitation is not taught or suggested by Gao.

As discussed in the sections above, Gao does not teach analyzing received data to determine whether any digitized speech is redundantly represented in a plurality of forms. Gao does not even teach or suggest generating and transmitting *redundant* representations of sound data. Hence, there is no need for a module at a receiving end of Gao's invention to analyze

whether any received data contains data that is *redundantly* represented. Thus, Gao fails to teach or suggest this limitation.

As discussed in the sections above, Parry and Riddle also fail to teach analyzing whether any received data contains data that is *redundantly* represented in a plurality of forms. Furthermore, Parry and Riddle fail to teach generating and transmitting data *redundantly* represented in a plurality of forms. Hence, there is no need for Parry's and Riddle's inventions to have a module that analyzes received data to determine whether it contains digitized speech that is *redundantly* represented. Thus, Parry and Riddle also fail to suggest this limitation.

Accordingly, Gao, Parry and Riddle fail to teach or suggest, individually or in combination, an analyzer module for analyzing a data structure to determine whether digitized speech is redundantly represented in a plurality of forms in the data structure. A *prima facie* case of obviousness cannot be established unless the references when combined teach or suggest all the claim limitations. MPEP 2141.

Applying this legal principle to the invention as embodied in the present claims and to the Gao, Parry and Riddle references, the Applicants respectfully submit that a proper reading of the references fails to disclose or suggest the invention embodied in Claims 13-18.

With respect to claim 17, which was rejected under 35 U.S.C. § 112, second paragraph, the Examiner's attention is directed to the explanation above concerning claim 7. Applicants respectfully submit that claim 17 particularly points out and distinctly claims what the applicants regard as the invention.

Claims 23-28

Claim 23 includes the limitation of "instructions to analyze said data structure to determine whether said digitized speech is redundantly represented in plurality of forms." Applicants respectfully submit at least this limitation is not taught or suggested by Gao.

As discussed in the sections above, Gao does not teach analyzing received data to determine whether any digitized speech is redundantly represented in a plurality of forms. Gao does not even teach or suggest generating and transmitting *redundant* representations of sound

data. Hence, there is no need for computer readable instructions stored at a memory of a computer system at a receiving end (assuming *arguendo* a computer system is applicable to Gao) to analyze whether any received data contains data that is *redundantly* represented in a plurality of forms. Thus, Gao fails to teach or suggest this limitation.

As discussed in the sections above, Parry and Riddle also fail to teach analyzing whether any received data contains data that is *redundantly* represented in a plurality of forms. Furthermore, Parry and Riddle fail to teach generating and transmitting data *redundantly* represented in a plurality of forms. Hence, there is no need for Parry's and Riddle's inventions to have computer instructions that analyze received data to determine whether it contains digitized speech that is *redundantly* represented. On the contrary, Riddle explicitly teaches computer readable instructions that cause a computer to select *one* compressor for performing compression. Thus, Parry and Riddle also fail to suggest this limitation.

Accordingly, Gao, Parry and Riddle fail to teach or suggest, individually or in combination, an analyzer module for analyzing a data structure to determine whether digitized speech is redundantly represented in a plurality of forms in the data structure. Thus, claim 13 is allowable. Claims 24-28 are also allowable at least for being dependent on claim 23.

With respect to claim 27, which was rejected under 35 U.S.C. § 112, second paragraph, the Examiner's attention is directed to the explanation above concerning claim 7. Applicants respectfully submit that claim 27 particularly points out and distinctly claims what the applicants regard as the invention.

Claim 9 and 12

Claim 9 includes the limitations of "selecting one or more codecs based on an aspect of a forum," and "converting to compressed digital data, by operation of each said selected codec, an amount of said voice signal." Claim 9 further includes the limitation that "when more than one codec is selected, said compressed digital data includes redundant representations of said voice signal..."

As discussed in the sections above, Gao does not teach or suggest generating *redundant* representations of sound data using different codecs. Rather, Gao teaches the use of different codecs to encode different pieces of a sound signal. For example, a high quality codec may be used to encode frames containing voiced speech, and a low quality codec may be used to encode frames containing unvoiced speech. It is submitted that, in Gao, every output from the codecs corresponds to a different frame, and no two codecs are used to compress one frame. Thus, Gao's system cannot be considered generating *redundantly* representations of the same voice signal.

Thus, Gao fails to teach the claim limitation that, when more than one codec is selected, said compressed digital data includes redundant representations of said voice signal.

As discussed in the sections above, Parry and Riddle also fail to teach generating data *redundantly* represented in a plurality of forms. In fact, generating multiple redundant compressions of the same voice signal is contradictory to explicit teachings of Riddle. Thus, Parry and Riddle also fail to suggest this limitation.

Accordingly, Gao, Parry and Riddle fail to teach or suggest, individually or in combination, compressed digital data includes redundant representations of said voice signal. Thus, claim 9 is allowable. Claim 12 is also allowable at least for being dependent on claim 9.

Claims 19 and 22

Claim 19 includes "a module for selecting one or more codecs based on an aspect of a forum," and "a module for converting to compressed digital data, by operation of each said selected codec, a voice signal associated with a participant in a forum." Claim 9 further includes the limitation that "when more than one codec is selected, said compressed digital data includes redundant representations of said voice signal associated with said participant in said forum."

As discussed in the sections above, Gao does not teach or suggest generating *redundant* representations of sound data using different codecs. Rather, Gao teaches the use of different codecs to encode different pieces of a sound signal. For example, a high quality codec may be

used to encode frames containing voiced speech, and a low quality codec may be used to encode frames containing unvoiced speech. It is submitted that, in Gao, every output from the codecs corresponds to a different frame, and no two codecs are used to compress one frame. Thus, Gao's system cannot be considered generating *redundantly* representations of the same voice signal.

Thus, Gao fails to teach or suggest at least the claim limitation that, when more than one codec is selected, said compressed digital data includes redundant representations of said voice signal.

As discussed in the sections above, Parry and Riddle also fail to teach or suggest, *inter alia*, generating data *redundantly* represented in a plurality of forms. In fact, generating multiple redundant compressions of the same voice signal is contradictory to explicit teachings of Riddle. Thus, Parry and Riddle also fail to teach or suggest this limitation.

Accordingly, Gao, Parry and Riddle fail to teach or suggest, individually or in combination, compressed digital data includes redundant representations of said voice signal. Thus, claim 19 is allowable. Claim 22 is also allowable at least for being dependent on claim 19.

Claims 29 - 32

Claim 29 includes "instructions to select one or more codecs based on an aspect of a forum," and "instructions to convert to compressed digital data, by operation of each said selected codec, a voice signal associated with a participant in a forum." Claim 29 further includes the limitation that "when more than one codec is selected, said compressed digital data includes redundant representations of said voice signal associated with said participant in said forum."

As discussed in the sections above, Gao does not teach or suggest generating *redundant* representations of sound data using different codecs. Rather, Gao teaches the use of different codecs to encode different pieces of a sound signal. For example, a high quality codec may be used to encode frames containing voiced speech, and a low quality codec may be used to encode frames containing unvoiced speech. It is submitted that, in Gao, every output from the codecs

corresponds to a different frame, and no two codecs are used to compress one frame. Thus, Gao's system cannot be considered generating *redundantly* representations of the same voice signal.

Thus, Gao fails to teach or suggest at least the claim limitation that, when more than one codec is selected, said compressed digital data includes redundant representations of said voice signal.

As discussed in the sections above, Parry and Riddle also fail to teach generating data *redundantly* represented in a plurality of forms. In fact, generating multiple redundant compressions of the same voice signal is contradictory to explicit teachings of Riddle. Thus, Parry and Riddle also fail to suggest this limitation.

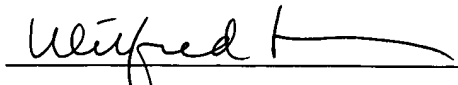
Accordingly, Gao, Parry and Riddle fail to teach or suggest, individually or in combination, compressed digital data includes redundant representations of said voice signal. Thus, claim 29 is allowable. Claims 30-32 are also allowable at least for being dependent on claim 29.

Conclusion

In view of the foregoing, the Applicants respectfully submit that the references do not teach or suggest the specific systems and methods as claimed. Accordingly, the Applicants respectfully submit that the pending claims are allowable.

Respectfully submitted,

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